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RESEARCH VISIBILITY. VOCATIONAL EDUCATION IS SERVICE--TOWARD TEACHING EXCELLENCE.

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FOURTEEN RESEARCH REVIEWS IN THIS ISSUE PERTAIN TO METHODS OF ATTAINING TEACHING EXCELLENCE, ONE OF THE MAJOR AREAS OF CONCERN IDENTIFIED BY THE PANEL OF CONSULTANTS ON VOCATIONAL EDUCATION. THEY ARE ORGANIZED UNDER THE TOPICS--(1) VOCATIONAL TEACHER RECRUITMENT AND SELECTION WHICH TREATS TRADE COMPETENCY EXAMINATIONS, RETIRING MILITARY PERSONNEL, AND VOCATIONAL TEACHER RESOURCES, (2) INSERVICE SEMINARS AND WORKSHOPS WHICH INCLUDES COMPUTER ASSISTED INSTRUCTION, TEACHING FOOD SERVICE PROGRAMS, OFFICE OCCUPATIONS TEACHERS, AND NEW MEDIA OF INSTRUCTION, (3) EXPANDING VOCATIONAL TEACHER TRAINING ACTIVITIES WHICH INCLUDES A TEACHER TECHNOLOGY CENTER, TRAINING PROGRAMS IN HOME ECONOMICS, TECHNICAL PROGRAMS IN VOCATIONAL AGRICULTURE, AND TRADE-TECHNICAL TEACHERS, AND (4) PILOT AND DEMONSTRATION PROJECTS WHICH INCLUDES DENTAL ASSISTING TRAINING AND TEACHERS, AND COMMUNICATION LINKED TECHNIQUES. "PLAIN TALK," A CONTINUING COLUMN BY THE AUTHOR, ASKS WHY MORE RESEARCH HAS NOT BEEN INITIATED WHICH ATTEMPTS TO ANALYZE THE ROLE AND EFFECTIVENESS OF THE VARIOUS COMPONENTS INVOLVED IN THE PREPARATION O TEACHERS. THE BIBLIOGRAPHY LISTS 20 RELATED STUDIES WHICH ARE IN PROGRESS. THIS ARTICLE IS PUBLISHED IN THE "AMERICAN VOCATIONAL JOURNAL," VOLUME 43, NUMBER 1, JANUARY 1968. (EM)

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RESEARCH VISIBILITY

SYNTHESIS / APPLICATION / DISSEMINATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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•"Research Visibility" is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The "Research Visibility" report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-070633, project 7-0633; "Synthesis and Application of Research Findings in Vocational Education").

Vocational Education Is Service . . .

The real strength of vocational education has come from its teachers—those experienced and informed persons who have brought to their students an appreciation for honest work and the knowledge and skills that lead the way to successful employment. And in this period of change, when each day brings another expedient practice, or palliative theory or device aimed at improving the educational process, it is good to keep in mind that the really important factor in any educational prescription is the teacher.

As the solid contributions of vocational education teachers are acknowledged it is also appropriate to spell out some of the ways in which they will have to be better in the future, and to speculate upon the various methods and approaches that will help insure that needed improvements will be accomplished.

Although much has been done to catalog the abilities and qualities that are needed for successful vocational teaching, the careful assessment of how each of these competencies may be realized is another matter. It is here that all agencies and institutions involved with vocational teachers—the schools that employ them, departments of education that certify them, and the colleges of education that train them—must give more attention to the various factors which contribute to teaching excellence.

Included here would be the basic human qualities of the persons who would become teachers, the methods employed in recruiting and selecting them, and the range and nature of the educational programs designed to prepare them for careers in teaching.

Toward Teaching Excellence

TABLE OF CONTENTS

INTRODUCTION ..... page 33

VOCATIONAL TEACHER RECRUITMENT AND SELECTION ..... page 34
- Trade Competency Examinations
- Retired Military Personnel
- Vocational Teacher Resources

INSERVICE SEMINARS AND WORKSHOPS ..... page 37
- Computer-Assisted Instruction
- Teaching Food Service Programs
- Office Occupations Teachers
- New Media of Instruction

EXPANDING VOCATIONAL TEACHER TRAINING ACTIVITIES ..... page 40
- Teacher Technology Center
- Training Programs in H.E.
- Technical Programs in Vo-Ag
- Trade-Technical Teachers

PILOT AND DEMONSTRATION PROJECTS ..... page 43
- Dental Assisting Training
- Dental Assisting Teachers
- Communcation-Linked Techniques

PLAIN TALK ..... page 45

PREVIOUSLY REPORTED STUDIES ..... page 47

BIBLIOGRAPHY ..... page 47
- Completed Studies
- Studies In Process

Dr. Gordon F. Law is editor of "Research Visibility." The organization for this department of the JOURNAL, the pattern for reporting and the writing represent his work.

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Some of the unique aspects of vocational subject teaching and the influence that quality teaching has on the total educational program are discussed in the Report of the Panel of Consultants, *Education for a Changing World of Work*, and in the subsequent Vocational Education Act of 1963. It was from these historic documents that the five topics relating to the theme of this issue were derived. These topics are:

1. Vocational Teacher Recruitment Practices: Evaluation of Occupational Competency and Potential Teaching Ability.
2. Opportunities for Inservice Seminars and Workshops.
3. State Education Department Leadership in Vocational Teacher Education.
4. Expanding the Vocational Teacher Training Activities in Higher Educational Institutions.
5. Pilot and Demonstration Projects in Vocational Teacher Education.

A recent publication of the Minnesota Research Coordinating Unit in Occupational Education is of special interest to this issue. This is Dr. Jerome Moss' *Review of Research in Vocational Technical Teacher Education.* Containing a bibliography of 141 titles relating to vocational teacher education, the *Review* gives attention to a number of topics, such as "studies of job requirements," "input studies," "program development," and "teacher recruitment." The *Review* also contains a classification model, which is the guide used for the assignment of research studies to various categories.

Directed principally to researchers who desire an organization and interpretation of completed projects that will open new vistas for further investigations, the review encompasses some materials from the general field of teacher education as well as materials dealing directly with teachers of vocational-technical programs. Research, developmental, and pilot training projects were considered appropriate to report, but articles, speeches and conference discussions were generally excluded.

Also contained in Moss' *Review* is information that the University of Texas has recently established a Research and Development Center in Teacher Education. "We should follow its progress closely, so as to utilize relevant results, but we should also undertake additional systematic efforts of our own. The task before us is too important and too large to depend entirely upon the efforts of others, or upon sporadic, uncoordinated activities on our part."

Limited numbers of this guide are available and may be obtained from: Dr. Jerome Moss, Department of Industrial Education, College of Education, University of Minnesota, Minneapolis, Minn. 55455.

TOPIC ONE: Vocational Teacher Recruitment and Selection Practices: Evaluation of Occupational Competency and Potential Teaching Ability

Trade Competency Examinations

5:1 "Feasibility of Providing Trade Competency Examinations for Teachers on a National Basis" by Gerald Griesse. Rutgers—The State University, New Brunswick, N. J. (Project # 5-0043) 1965. (VT # 002 617) 85 pages.

The use of examinations to evaluate the occupational competency of prospective teachers has long been employed in trade and industrial education. But there has been no uniform national pattern or procedure. Some states employ a combination of written and performance tests; others use a written examination only; and yet other states, unfortunately the majority, have developed no comprehensive system for evaluating vocational skills and knowledge.

The Rutgers University investigation into the feasibility of establishing national proficiency examinations, and along with them, national norms, was conducted through a series of conferences, written reports and panel discussions. Participants from 22 states and the District of Columbia attended a series of four workshop meetings. At each session, selected individuals, persons with wide experience in the construction and use of trade proficiency examinations or standardized test construction, prepared and presented papers. These were followed by reaction presentations and by general and small group discussion meetings.

The four topics presented were:

—"Constructing Valid Occupational Competency Examinations" by Joseph T. Impellitteri, Pennsylvania State University.

—"A Limited Field Test of the Automotive Competency Examination" by Ray A. LaBounty, Eastern Michigan University.

—"Preparation, Administration and Implementation of Trade Competency Examinations for College-University Credit" by Joe L. Reed, University of Tennessee.

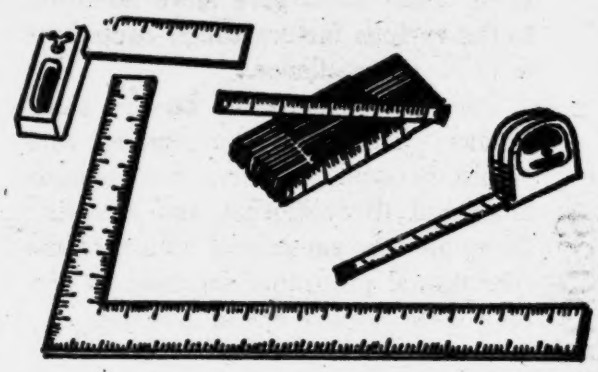
—"The Performance Phase of Trade Competency Examinations" by Benjamin Shimberg, Educational Testing Service.

Impellitteri's paper focused attention on three questions:

1. What considerations should be given to reliability and validity in constructing nationwide occupational competency examinations?
2. How may valid and reliable occupational competency examinations be constructed?
3. How may the validity and reliability of occupational competency examinations be measured?

When discussing the importance of establishing norms, Impellitteri indicated that primary consideration must be given to the manner of selection of individuals to be included in the norm group. "A decision must be made as to the nature of the persons in this norm group. The basis for this decision lies in the answer to the question: 'With whom do we want our prospective candidates to be compared?'"

Among the factors to be considered when establishing national norms are geographical differences in occupa-



tions and varying levels of experience and training required for teacher candidates from one state to another.

LaBounty's report deals with the limited field testing of automotive competency examinations. Fifteen automotive competency examinations, previously developed in Michigan, were administered in three states, Michigan, Kansas and North Carolina.

States Must Cooperate

In Donn Billings' reaction presentation is the statement that: "The major problem to overcome, in the development of trade competency examinations on a national basis, is the reluctance of the various states to: (a) share developmental projects; (b) accept at par value other state philosophies and standards; (c) exchange test instruments on an unlimited basis, and (d) discharge traditional patterns of trade testing.

Reed's discourse on the preparation, administration and implementation of national competency examinations identifies seven major uses:

1. To provide state certification boards with an alternative to the "years of experience" requirement.
2. To give university credit for work experience or experience gained in cooperative programs.
3. To help raise salaries and prestige of vocational education, maintain high standards and to help teachers recognize important facets of the trade to emphasize in teaching.
4. To validate vocational teachers' competencies in the eyes of academic administration.
5. For teacher certification purposes, as evidence of competency, for reciprocity purposes between centers and states.
6. For teacher recruitment and selection.
7. To identify sub-marginal and non-competent teachers who have been approved for teaching subjects in areas outside of their fields of preparation and experience.

Performance Test Needed

There has been a general lack of agreement in the past concerning the value of performance tests. While some have advocated that they are essential to assessing accurately a person's competency to teach a vocational subject, others claim that a written test relating to trade theory is all that is needed. In view of this difference of opinion, the Shimberg report should be of special interest.

Shimberg's report, which gives particular emphasis to the performance phase of trade proficiency examinations, supports the need for practical as well as theoretical evaluation of trade competency. Citing the Navy's experience with performance examinations during World War II, Shimberg states, "Today it is generally conceded that written tests of trade knowledge are not a very dependable way to evaluate shop performance and that without some type of direct or indirect performance measure it is unlikely that we can make an accurate assessment of an individual's trade competency."

Suggested Considerations

When discussing the construction of performance examinations Shimberg cites five considerations suggested by David Ryan and Norman Frederickson in *Educational Measurement* (ed. by E. E. Lindquist, American Council on Education, Washington, D.C., 1951. pp. 455-494). These suggestions are:

1. The sampling of activities should be as wide as practical.
2. A minimum of easy or routine operations should be included.
3. The task should be sufficiently exact to permit accurate standardization and enable objectives to be made.
4. The task chosen should have face validity to command the respect of the examinee.
5. Tools and equipment should be reduced to a minimum and should be capable of standardization.

Shimberg further suggests that a two-way grid, listing job specializations along one axis and performance tasks along the other, will help to identify the contribution of each task to the evaluation process. Such a grid will serve to reveal gaps, overlap and possible duplication.

Main Value of Study

The main value of the feasibility study is that it identifies a growing need for trade proficiency tests that would be available on a national scale. The development of national tests, both written and performance, could serve a number of purposes. First, they would be of great benefit in states which lack adequate numbers of teacher candidates in various occupational categories to justify a substantial financial investment needed for their own test construction. Also, national tests and norms, used at the discretion of state departments and teacher education institutions, could help bring about standards of objectivity in the vocational teacher selection process.

With respect to the use of proficiency examinations for the allowance of college credit, important precedents have been established. Many institutions are now granting college credit for skill and knowledge gained outside the classroom in a variety of fields and disciplines. These fields include, in addition to trade and technical occupations, proficiency in mathematics, foreign language and musical performance.

Retiring Military Personnel

5:2 "A Study of Potential Utilization of Retiring Military Personnel in Vocational and Technical Education Programs" by Malcolm Richland. System Development Corp., Santa Monica, Calif. (Project # 5-0147) 1967. ERIC # ED 010 593. MF $0.27 HC $5.84. 130 pages.

This is the report of a project designed to explore the feasibility of developing a computerized system to match military retirees to job vacancies for teachers and other support personnel in vocational and technical education. The project had five major objectives:

1. To determine the compatibility between military occupational specialties and skill areas in vocational education programs.
2. To determine state certification requirements and needs for teachers in vocational education programs.
3. To identify from a sample of current retirees those who might qualify for teaching positions in vocational education.
4. To develop an on-going method of matching retirees with specific skills, interests and experience to available teaching positions in vocational education.
5. To recommend, if needed and feasible, a military retiree job matching system—including its requirements, its possible sponsors, operators and funders.

A four-phase plan was developed to accomplish the objectives of the proj-

ect. During a planning period, cooperation and coordination with the Department of Defense and each of the military services were accomplished; data collection instruments were designed; data collection procedures were established, and the advisory council convened to review project plans.

During the second or data collection phase, surveys were conducted with selected retired military personnel. State teacher certification requirements in vocational education were also obtained by survey methods. Military skills and vocational education skills were analyzed so that compatibility could be determined, and data were coded for analysis and computer treatment.

The third section of the study had to do with analysis of data, and the fourth was the final report, in which the findings, conclusions and recommendations are stated.

Conclusions

The principal conclusions of the study were as follows:

—There is a widespread shortage of vocational education teachers, yet there are thousands of military retirees who are occupationally and educationally qualified for vocational teaching positions.

—No simple conversion can be made from military specialty titles to vocational and technical education instructional areas.

—After screening and analysis of military retiree backgrounds have been accomplished, it is feasible to use them as teacher candidates in vocational education programs.

—State certification requirements, both for education and occupational experience, pose no insuperable barriers to the employment of military retirees.

—There does not exist at present any systematic procedure nor method for channeling interested and qualified military retirees into the field of vocational education.

—Computer-assisted matching of retirees to job vacancies in vocational education is technically feasible.

Recommendations

Based upon the study results, the following recommendations are proposed:

1. A military retiree-job matching, computer-assisted system should be designed and implemented as soon as possible.

2. The systems sponsor should be the American Vocational Association with the possible co-sponsorship of the American Association of Junior Colleges.

3. The system could be funded either individually or collectively by the Department of Defense, Department of Labor, Office of Economic Opportunity, and U. S. Office of Education.

4. The system's operator should be an independent, nonprofit organization, possessing certain appropriate computer facilities and experience in the field of education, information system design, computer programming, and advanced data management technology.

The report further states "the proposed system has the immediate goal of assisting in the placement of military retirees who are interested in and qualified for teaching positions in vocational education. However, the system should be designed in such a way that it could be readily expanded to serve (a) all the job-seeking needs of all military retirees, and (b) all the personnel-seeking needs of employers in vocational education."

Limitations Reported in Study

Among the limitations reported in the study was information that matching of military retirees to jobs in vocational education by using service specialty code numbers was unsatisfactory, and that investigators found it necessary to rely heavily upon their personal judgment to accomplish the matches needed for the project. Another limitation cited was that "no satisfactory method was found for predicting the need for instructors or other personnel in future vocational education programs by occupational categories."

It may be fair to ask, at least before a national system is incorporated, that there be further refinement of the matching process. To be specific, although the skills performed by auto or truck mechanics in military and civilian establishments may be very similar, there are a variety of associated procedures and fields of knowledge in such things as parts purchasing, inventory control and customer relations that would be quite different.

There are also some basic differences in purpose and mode of operation between military life and public school work. For example, the military traditions of caste and automatic conforming behavior, and the relative insulation of military personnel from public scrutiny and control would not be similar to the prevailing conditions in the public school environment.

Vocational Teacher Resources

5:3 "Supply and Demand Factors Affecting Vocational Education Planning" by Harry V. Kincaid. Stanford Research Institute, Stanford, Calif. (Project # 5-0208) 1966. ERIC # ED 010 305. MF $0.27 HC $6.12. 121 pages.

The wise and judicious recruitment and selection, and the subsequent professional preparation of persons for vocational teaching positions, are critical to the ultimate success of vocational education. The Stanford University study, therefore, directed toward developing techniques for surveying and cataloging vocational teacher resources, deals with an important topic.

The objectives were to develop within a selected geographical area, Santa Clara County, California: (a) a description of present and potential vocational education teachers; (b) estimates of future needs for change in vocational education programs, and (c) estimates of the influence of instructional personnel policies and practices on the size and quality of vocational teacher manpower resources.

It was further stated that the overall purpose of the study was to develop and test methods for extending a comparable inventory on a regional or national basis after evaluation of the various data used in the preliminary program.

Using the Panel of Consultants' definition of vocational education, the study sought to identify such programs in two-year colleges, high schools and proprietary schools and in programs which were out of regular school organizations throughout the county.

Attention was directed to development of a self-administered questionnaire to obtain information on the educational background, teaching experience and status, and employment experience of instructors in public high schools and community colleges. Information as to how individuals first

came to the attention of school officials and to what degree they satisfied the qualification requirements was discussed in personal interviews with school administrators. As background information for these interviews, discussions had been held with state education officials concerned with credential requirements of vocational teachers.

Among the results reported for the study is information that the availability of vocational offerings for high school students varied widely and that public vocational education is concentrated at the junior college level.

When speaking of the collection of data from high school programs it was reported that a problem exists in determining which staff members should be classified as vocational teachers and which should not, as some teachers had responsibilities for both general and vocational courses.

TOPIC TWO: Opportunities for Inservice Seminars and Workshops

Computer Assisted Instruction

5.4 "COMPUTER ASSISTED INSTRUCTION; SUMMER TRAINING PROGRAM" BY GEORGE C. McGREGOR. PROVIDENCE COLLEGE AND STATE DEPARTMENT OF EDUCATION, PROVIDENCE, R. I. (PROJECT # 5-0014) 1965. (VT # 002-424) 35 PAGES.

5:6 "COMPUTER ASSISTED INSTRUCTION; IN-SERVICE TRAINING FOR VOCATIONAL TEACHERS" BY GEORGE C. McGREGOR. PROVIDENCE COLLEGE, PROVIDENCE, R. I. (PROJECT # 5-1214) 1966. (VT # 2423) 18 PAGES.

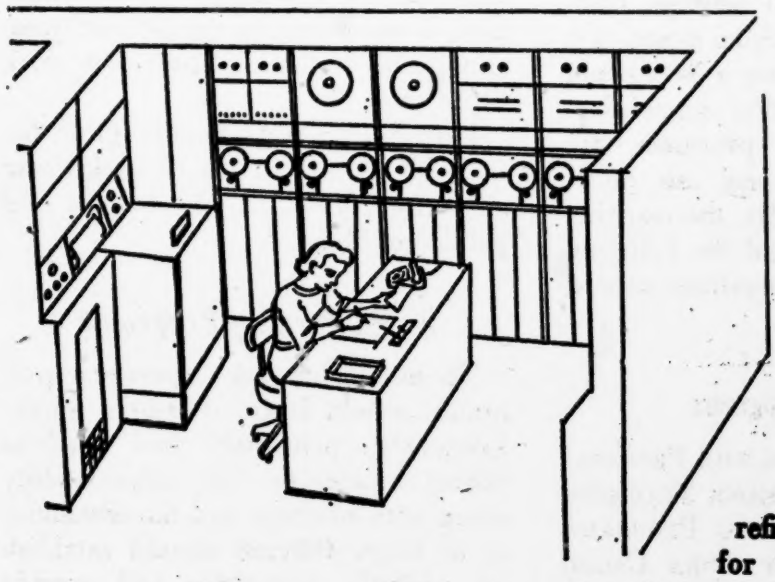
The summer program in computer assisted instruction, cooperatively developed by the Rhode Island State Department of Education and Providence College, had two main objectives:

1. To develop a group of vocational teachers who understand computer assisted instruction and who are proficient in coursewriter techniques for converting individual lessons into the proper format for computer assisted instruction.

2. To prepare sample lessons for computer assisted instruction in a variety of vocational course areas.

Letters were sent to general and vocational high schools in Rhode Island and Massachusetts, announcing plans for the summer training program. It was pointed out that a prerequisite for enrollment was the IBM Programmer Aptitude Test. Ninety-four vocational teachers applied for enrollment and took the test. The 30 teachers who scored highest were interviewed, and 20 were chosen for the program.

The 20 enrollees represented a variety of vocational subject areas, including electric arc welding, electronics, sheet metal work, graphic arts, and business education. They received 120 hours of classroom instruction and laboratory practice in computer assisted instruction under the guidance of a programmer, a psychologist and a variety of consultants.



During the final phase of the summer training program, the students actually planned, designed, wrote, and tried out sample lessons.

The final report contains selected materials on computer assisted instruction that were used and the summarized comments and reactions of persons enrolled. Among the instructional materials contained in the report are a description of computer assisted instruction, its educational advantages, some guidelines for CAI, a synopsis of student comments and reactions, and the relations between the teacher and the program. The report also contains three computerized lessons, having to do with basic bookkeeping, the electric circuit and calculating and estimating costs.

Sequential Report

The sequential report of "Computer Assisted Instruction" (U.S.O.E. Project 5-1214) relates to a winter evening program of advanced instruction for 13 of the same 20 teachers who had received the basic instruction. The objectives of this section were to:

1. Develop a group of vocational teachers who understand computer assisted instruction and who are proficient in coursewriter techniques for converting individual lessons into the proper format for computer assisted instruction.

2. Prepare, test and refine a series of lessons for computer assisted instruction in a variety of vocational course areas.

Weekly two-hour class sessions were held at Providence College. These were divided into two one-hour sessions. The first hour was used for class discussions of problems arising during the writing of individual course sessions. On alternate weeks, this hour was used for formal instruction of coursewriter language. The second hour was used for class work on individual courses.

In the final evaluation of the project it is stated that each participant had acted in the roles of author and proctor, each had written a course sector using coursewriter language, and each had had an opportunity to use the 1050 data communications system to enter a portion of his course material.

Among the 10 conclusions of the study are statements that "computer assisted instruction offers an entirely new approach to individual instruction . . . CAI is especially suited to remedial work due to the ability of the author to utilise the branching features . . . and the preparation of meaningful course material is much more difficult than may first be realized."

There are those who say that teaching machines will ultimately take over many of the processes now handled by teachers. Others speculate on a day when virtually all learning will take place through the use of various forms of education media; those teachers still needed would have completely different roles.

On this point it is important that we remind ourselves of the human qualities of sympathy and understanding which a teacher should possess. A person is responsive to feelings, emotions and needs. A machine is not. But the teacher who is merely a data bank, a storehouse of specific knowledge, and whose teaching processes are mechanical and directional can quickly be replaced. Hopefully, the machine may be most beneficial in bringing into focus the human qualities needed in teachers.

Teaching Food Service Programs

5:5 "WORKSHOP FOR THE PREPARATION OF HOME ECONOMICS TEACHERS TO TEACH WAGE-EARNING PROGRAMS IN FOOD SERVICE" BY ANNA CAROL FULTS. SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE, ILL. (PROJECT # 5-0015) 1965. ERIC # ED 003 493. MF $0.45 HC $11.48. 280 PAGES.

This study is to assist in the planning of wage-earning programs for boys and girls in the 11th and 12th grades. The materials included are to help teachers prepare students with wage-earning skills for occupations which utilize home economics-related knowledge and skills. The programs can be adapted to junior colleges, area vocational schools and adult classes in wage earning.

Prime consideration was given to the food service worker, although program outlines for hotel and motel housekeeping aides are contained in the study.

The general steps in initiating and developing an effective wage earning program are:

1. Organizing an advisory committee.
2. Obtaining information on employment opportunities.
3. Developing a job analysis.
4. Planning job placement, evaluation and follow-up.
5. Determining the qualification of trainees.
6. Reviewing the qualifications of wage-earning teachers.

Part I of the bulletin introduces steps in organizing wage-earning programs. Part II contains a series of lessons in food service occupations for a non-cooperative program in home economics wage earning. The lessons include information sheets in the form of generalizations regarding particular foods; procedure sheets for more than 70 work experiences planned as sample lessons to give students a chance to gain skill in relation to food principles; a cost sheet; suggested test questions, and evaluation sheets on work experience.

Part III is a suggested program for training of youth as housekeeping aides for hotels, motels, homes, and public buildings.

Wage Earning Programs

To establish work experience programs, school board members, superintendents, principals and teachers should share in the responsibility along with business and the community at large. Officials should establish an advisory committee and specific occupational committees to assist in planning. Listed are purposes, duties, suggested personnel for such committees, and suggested method of appointment and organization.

Steps to be taken in setting up a program include: (a) deciding on the type of program to be established; (b) considering the budget; (c) selecting a coordinator, assigning duties of the coordinator and his place in the guidance program; (d) selecting classroom, fixtures, equipment, and instructional materials, and (e) naming the course and scheduling classes.

The study contains a number of guides—check sheets, questionnaires, form letters—for the establishment of a good program. These guidelines are:

1. Suggestions for the planning of a survey to gain information on opportunities for employment. Such information will determine the needed training in initiating and developing a successful program.
2. A guide for making a precise job analysis. The analysis will point out fundamental procedures, determine the course of study and help identify instructional units.
3. Suggestions for information that should be included in job specifications, describing the person to do the job and not requirements for the job.
4. Recommendations for job placement and suggestions for essential course evaluation and follow-up.
5. A guide for determining qualifications of trainees as well as methods of selection of trainees.

This study offers highly specific, constructive, step-by-step suggestions for the implementation of a wage-earning program. Because of the detail it can be used as a practical handbook for officials and teachers. Educators who are also homemakers may want to try some of the numerous recipes that have been included in the study.

Office Occupations Teachers

5:7 "GUIDELINES FOR THE PREPARATION OF OFFICE OCCUPATIONS TEACHERS" BY FRED S. COOK. WAYNE STATE UNIVERSITY, DETROIT, MICH. (PROJECT # 6-1522) 1966. ERIC # ED 010 195. MF $0.18 HC $3.88. 87 PAGES.

This study's Purpose states that: "Business and office teacher educators had relatively little contact with and no direct responsibility in the preparation of vocationally certifiable teachers prior to the passage of the Vocational Education Act of 1963. Under the provisions of this Act, however, business and office teacher educators have immediate, direct and continuing responsibility for the preparation of teachers for office occupations."

In order to implement adequately the Vocational Education Act of 1963 in the office occupations, a series of clinics were held to:

1. Focus the attention of business and office teacher educators on the Vocational Education Act of 1963.
2. Discuss the implications of the Act for business and office teacher education curriculums.
3. Obtain the best thinking for the profession for the development of guidelines for viable business and office teacher education curriculums.
4. Disseminate the guidelines which were developed through a series of training clinics. (These guidelines establish, among other things, recommended minimum work experience requirements, general and vocational education courses and levels of subject matter competencies.)

The four-phase series of clinics gave leaders in business education the opportunity to establish minimum requirements for office occupations teachers.

During the first, or planning phase, 52 city and state business education supervisors, business teacher educators and consultants met to develop preliminary guidelines and to determine methods for dissemination and revision of the preliminary draft. As a result of this clinic, a series of 20 guidelines was developed and revised. Sets of these were mailed to 1,200 city and state supervisors and business teacher educators for comment.

Many Educators Assist

Conferences were held in the nine H.E.W. regions, where recommended guidelines were revised and sent on to a national clinic for further refinement. At this stage an editorial staff reviewed and further revised the guidelines and, with the assistance of professional editors, prepared a final draft. A total of 323 business educators participated in the development of these guidelines, either by submitting written suggestions or by attending one or more of the regional or national meetings.

Nineteen guidelines for the preparation of office occupations teachers were finally submitted. The report states that these guidelines are suggestions for action . . . describing the qualities and competencies which these teachers should possess and indicating the processes for achieving these goals. Each guideline is presented as a statement, and each is followed by supporting material dealing with "why" the guideline has been included and "how" it may be implemented.

All vocational business and office practice teachers and teacher educators will find information valuable to them in the Wayne State study. Although it could be said that the majority of guidelines presented are already well known and generally accepted, there are several others which should add new perspectives to the preparation of office practice teachers.

These include the guidelines which specifically recommend job-related experience and competency—"providing opportunities for work-study and field experience; requiring part time or full time work in a regular job; requiring competency in conducting job analysis, or requiring simulated office experience in well-equipped laboratories."

New Media of Instruction

5:8 "CONFERENCE FOR VOCATIONAL TEACHER EDUCATION ON NEW MEDIA OF INSTRUCTION" BY W. VINCENT PAYNE. TUSKEGEE INSTITUTE, TUSKEGEE, ALA. (PROJECT # 6-2224) 1966. ERIC # ED 010 435. MF $0.18 HC $2.76. 29 PAGES.

The conference on new media of instruction was conducted by Tuskegee Institute for 50 teachers from the southern region of the United States, Puerto Rico and the Virgin Islands. Four major divisions of vocational education were represented.

The specific objectives of the one-week conference were to (a) develop an awareness on the part of vocational educators of the availability and value of the new media of instruction; (b) develop the ability to select and use the educational media in respect to accepted principles of teaching and learning, and (c) develop the ability to utilize the results of research relating to the use and development of new media in vocational and technical education.

Each day of the conference was begun with an address by a consultant—an authority in the field of communication theory or educational media. In most cases, the presentation was coordinated with demonstrations and practical applications involving one or more of the new media. Among

the media used were educational television and video tape systems, programed instruction, tape recordings, 2x2 slides and filmstrips, 8 mm. single-concept films, 16 mm. films, opaque and overhead projections, and overhead projectals.

Subsequent to each presentation was a period for discussion. Further discussion took place in organized, small-group, vocational interest seminars conducted during the afternoon. The four fields of interest represented were agriculture, business, home economics, and trade and industrial education.

During evening sessions, oral reports were made by each group. Each day's activities were then summarized and clarified for written reports. Implications from these are included as a part of the conference report.

Valuable Experience

Participants' ratings of the various sections of the conference, together with selected comments, are presented in this report. They convey the impressions that the one-week institute, although too short in duration, was a valuable experience.

The report states: "At least one of the specific objectives of the conference was achieved. . . . There is evidence that an awareness on the part of vocational and technical teacher educators of the availability and value of the new media of instruction was developed."

The report further states that the presentation on theories of learning awakened the participants to the fact that no single set of theories can be applied to a specific learning situation. It was pointed out that there is a stratification between what is discovered through research in the laboratory and what is actually applied in classrooms. . . . There are no theories of *teaching* that can be applied in using the new media—research has centered on the behavior of *learners*—not the teachers.

TOPIC THREE: State Education Department Leadership in Vocational Teacher Education (No Reports)

TOPIC FOUR: Expanding the Vocational Teacher Training Activities in Higher Educational Institutions

Teacher Technology Center

5:9 "A VOCATIONAL-TECHNICAL TEACHER TECHNOLOGY CENTER—THE DEVELOPMENT OF A MODEL" BY MILTON E. LARSON. RUTGERS, THE STATE UNIVERSITY, NEW BRUNSWICK, N. J. (PROJECT # 5-0018) 1965. ERIC # ED 003 522. MF $0.18 HC $2.72. 60 PAGES.

Until recent times there was a practice of relegating the vocational department to a discarded school building, portion of the basement or some other substandard facility. The concept of second-class education for second-class citizens, so often associated with vocational schoolwork, seemed to be exemplified in these makeshift and outmoded shops and classrooms. On college campuses, too, the vocational teacher education department seems to have suffered from similar policies and practices.

It is most encouraging, therefore, to find a model teacher technology center, in which there are facilities for updating and upgrading vocational-technical educators in recent developments of industry and technology.

The purpose of this study was to devise a vocational-technical teacher technology center model for keeping teachers updated in their occupational fields and aware of new developments in pedagogy. Specifically, the objectives were to develop the educational specifications for a "model" center; to formulate architectural graphics and an outline of structural considerations related to design and construction of such a facility, and to disseminate research findings to potentially interested individuals, institutions and organizations.

Two Phases of Project

The project was carried out in two phases: (a) the development of educational specifications and (b) preliminary architectural plans. For the establishment of educational specifications a Panel of Consultants, composed of specialists of national reputation, was selected. Field study visitations were made to assess the progress at other large universities. The resolution of educational specifications led to the formulation of architectural plans.

To aid in the dissemination of findings, fliers were circulated at the American Vocational Association Convention of 1965. Later, a Dissemination Conference was held for 60 guests from 8 different states. Information was further circulated through brochures and periodicals.

The Technology-Resource Center was planned to provide the ultimate in innovations and advanced hardware, such as closed-circuit TV and a data retrieval system. Constructed in flexible modules or key instructional space, the physical plant is designed for short and long time spans, lectures and conferences, and combining teacher learning with teacher training. The space is adaptable for demonstrations, institutes, seminars, and workshops. The Center was also designed for the development of modern curricula and mass media teaching materials.

The research oriented Resource complex includes a library, a curriculum and evaluation center and a reproduction area.

The operational policy allows for a full-time base staff; the granting of graduate and undergraduate credit for students at other universities, and evaluation as a basic part of all activities.

The student body will be made up of teachers, teacher educators, administrators, and guidance personnel. The facility will be open to boards of education, supervisors, and management and union officials.

The Center will serve Distributive, Technical, Business, Agriculture and Trade and Industrial Education, as well as Home Services and Home Economics.

Recommendations

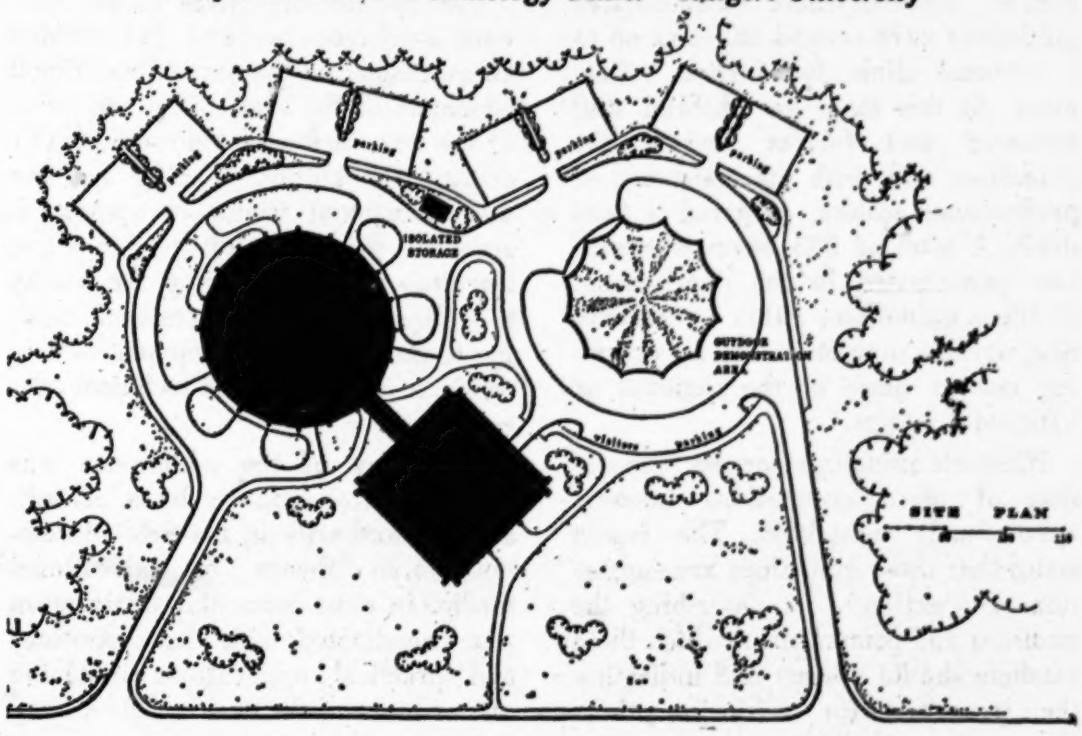
The report urged the wide dissemination of the findings of the study, the implementation of its concepts by educational institutions and state departments of education, and the circulation of a brochure by the Superintendent of Documents, U.S.O.E., which would provide information related to the Center. (The report contains suggestions for such a brochure.)

Further recommendations were:

1. Cooperation of two or more states supporting a unified Technical-Resource Center.
2. Further research devoted to the components of such a Center.
3. U.S.O.E., state departments and educational institutions give consideration to the principle that learning is a continuing process and needs provisions for proper facilities geared to updating education in technology, science and pedagogy.

The value of the report describing the proposed Rutgers University mod-

Proposed Teacher Technology Center—Rutgers University



el teacher technology center would have been greater if it had contained substantially more supporting materials with respect to the various specific activities that would take place there. It is a maxim in modern education theory that the physical plant should be an outgrowth of the planned curriculum rather than the other way around. It is hoped, therefore, that subsequent developments of plans for vocational teacher education will be designed from within—from a detailed and comprehensive set of educational specifications.

Training Programs in H.E.

5:10 "TRAINING PROGRAM FOR TEACHERS AND LEADERS OF GAINFUL EMPLOYMENT TRAINING PROGRAMS IN HOME ECONOMICS" BY JUNE COZINE. OKLAHOMA STATE UNIVERSITY, STILLWATER, OKLA. (PROJECT # 5-0053) 1965. ERIC # ED 003 105. MF $0.27 HC $6.64. 148 PAGES.

This four-week training program conducted by Oklahoma State University had 32 participants enrolled—26 home economics teachers from Oklahoma, 2 from Kansas, 3 graduate students from Oklahoma State University, and one representative of the Home Economics Education Staff of the Louisiana Vocational Program.

Staff for the program consisted of six home economists (three full time and three part time) with special training and experience in child care, clothing, food, and home economics education.

Four courses were offered with all participants taking the course, Education for Gainful Employment in Home Economics. Each participant chose one course from three others "aimed at providing leadership training for child care service workers, clothing service workers or food service workers."

Several days were spent in developing an overall viewpoint of the gainful employment aspect of the home economics program and an understanding of the characteristics, purposes, factors involved, opportunities, and need for this type of program. The curriculum materials developed were designed for use with girls in the 11th and 12th years of high school.

The report states: "The real values of the materials can only be determined as they are used. If other home economists use the materials in the

teaching of gainful employment courses, an evaluation with suggestions for revision would be greatly appreciated. Please send to the Home Economics Education Department, Oklahoma State University, Stillwater, Okla."

Included in the report are outlines of each of the courses, complete with bibliographies and other resource materials. Mainly of interest to home economics teachers and teacher educators, the report is illustrative of the increased interest in home economics that is being given to instruction leading to gainful employment.

Technical Programs in Vo-Ag

5:11 "A TRAINING INSTITUTE FOR TEACHERS OF TECHNICAL PROGRAMS IN AGRICULTURE" BY HOWARD SIDNEY. STATE UNIVERSITY OF NEW YORK, COBLESKILL, N. Y. (PROJECT # 6-2662) 1966. ERIC # ED 010 335. MF $0.18 HC $3.44. 79 PAGES.

The report of the Cobleskill, N.Y., Agricultural and Technical College one-week training institute is comprised of summaries of the speeches, workshops, field trips, curriculum plans for vocational technical education in agriculture, various committee assignments, and reports from 13 other states.

Participants of the training institute included representation from agricultural business and industry and teacher educators, administrators and teachers of agriculture. The purpose for the program is that since a large number of post high school institutions in many states will be expanding agricultural education at the technician level, there is a need for the development of guidelines for programs to train technicians.

An opening address by John Lacey, Program Specialist in Agricultural Education, U.S.O.E., spelled out the need for and expected outcomes of the Institute. Among his remarks was a statement that, "Technical education for agriculture is not really new to many parts of the nation. New York State and the Agricultural and Technical College here at Cobleskill have offered programs for 50 years."

Lacey mentioned the growing demand for technically trained workers in farm-related fields of service and distribution and the need to develop further understanding of the meaning of technical education. He stated the objectives of the conference to be the following:

1. To determine the needs for technical education in agricultural occupations.
2. To present information about the opportunities for graduates of technical programs.
3. To identify the successful practices and procedures with regard to administration.
4. To observe and study the necessary physical facilities for technical programs.
5. To determine faculty needs in technical education in agricultural occupations.
6. To provide help in developing new curriculums for technological programs.
7. To determine the role of youth organizations in technical level occupations and post high school programs.
8. To provide information on initiating technical programs in agricultural occupations.
9. To determine good placement and follow-up procedures.
10. To provide supervised occupational experience.

In his address to the conference, Dr. S. V. Martorana, Executive Dean for Two Year Colleges, State University of New York, revealed that New York State now has 28 public community colleges and 6 agricultural and technical colleges, virtually blanketing all regions of the State. He estimated that upwards of 85 percent of the State's high school graduates live within reasonable daily commuting distance of a public two-year college.

Martorana indicated that two-year colleges are encouraged to adopt vocational programs of less than two years

duration for high school graduates and thus take on responsibility for continuing vocational education. However, he made no suggestion concerning the pre-employment vocational instruction of dropouts and otherwise disadvantaged youth and adults in these collegiate settings, nor did he suggest alternative administrative units.

Martorana further stated: "In a sense, the movement that has occurred in New York State and in some other states to establish area vocational schools which specialize and particularize their program only to the vocational programs, represents a violation or departure from the basic educational principle of comprehensiveness."

In statements relating to the instructional faculty for technical agricultural subjects, Evan Dana, Chairman of Agricultural Technology, New York State Agricultural and Technical College, Canton, identified three major competencies of qualified agricultural teachers: (a) technical subject matter; (b) agricultural experience; (c) formal course work in science or agricultural teaching methods.

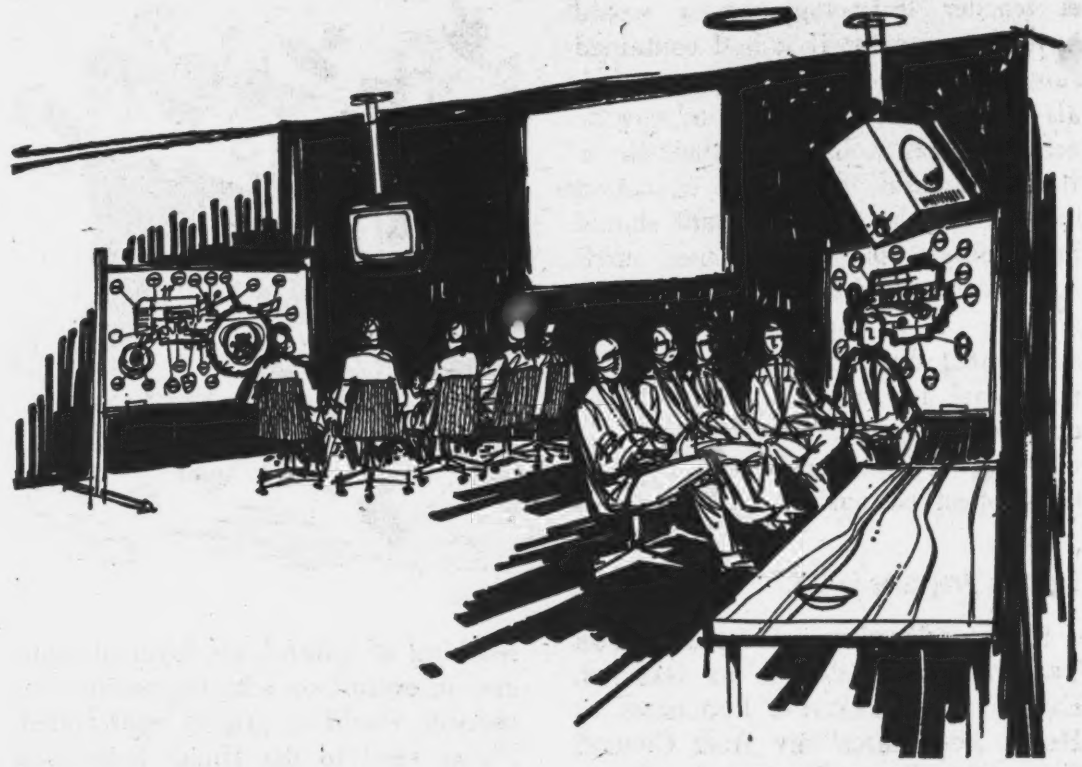
Other Reports

Norman Foote, Chairman of Agricultural Technology at Farmingdale, advocated the combination of knowledge and teaching ability; he stressed the need for technical agricultural education faculty to have a strong commitment for being of service to students.

Wilbur Farnsworth, Agriculture Chairman at the Delhi Agricultural and Technical College, spelled out that the teacher we are looking for today be a person with a master's degree in a subject field; teaching minor in related field; one semester of professional education courses, and four to five years of successful work experience in the field.

Other sections of the Cobleskill report deal with such topics as the importance of training for the farm equipment business; providing planned supervised occupational experiences for technical occupations; planning and initiating curriculums, and technical education in agriculture as assessed by members of advisory committees.

This report would be of principal interest to persons who teach or wish to teach technical agriculture in two-year college programs. For others, it may be a source of information concerning the expanding nature of farm-related jobs and the corresponding recommended curriculum changes. The Institute did not appear to give adequate attention to needed articulation between secondary and post secondary vocational programs, nor to the vocational instruction of out-of-school youth and adults.



Trade-Technical Teachers

5:12 "A Developmental Program for the Improvement of Trade-Technical Teacher Education in the Southern States" by David Allen and Melvin L. Barlow. University of California, Los Angeles, Calif. (Project # 6-2861) 1966. ERIC # ED 011 961. MF $0.18 HC $2.96. 53 pages.

The special six-week program at U.C.L.A. for selected teacher educators from southern colleges provided an opportunity for participants to get away from their local and immediate problems and activities and observe an extensive and progressive operation involving more than 500 California trade and technical teachers. Included in the program were periods of observation of the U.C.L.A. team approach to teacher education, a series of field trips, guest lectures, and workshop seminars.

It was reported that previous research at U.C.L.A. using small-group procedures in an actual instructional environment had produced excellent results, and that the use of this approach with trade and technical teacher educators also had appeared to be successful.

At the first conference with southern vocational educators, and before the six-week agenda was explained, participants were asked to list the outcomes they desired from the U.C.L.A. program. These objectives included the following concerns:

—The overall purposes of vocational and technical education.

—How the total program is administered and the place of teacher education in the administrative pattern.

—New concepts in teaching and in teacher education.

—Techniques of upgrading teachers with little or no professional training, but a great deal of work experience.

—New curriculum approaches and resource materials.

—Factors in selection and placement.

Except for electives, all U.C.L.A. Core teacher education courses employ team teaching techniques. The report explains that a team teacher cannot work as an individual; he must function as part of a unit so that he can successfully relate his instruction to the material the other members of the team present.

"Unlike many teacher education programs in which the instructor is brought from the outside to teach one or several classes and is left to determine his own instructional content, team teachers attend planning meetings prior to teaching their assign-

ments. At these meetings they discuss in detail what they will teach and ways in which to best present their instruction."

"The instruction material is multi-media. It includes workbooks, notes, instructional sheets, audio tapes and programmed books. No textbook is used with the course, which thus necessitates the continual development of instructional materials designed to meet the ever changing program requirements. Closed circuit TV and video tapes are used and technical subject specialists are brought into the programs to make presentations when their specialties are needed."

While the primary purpose of the developmental program for the improvement of trade-technical teacher education in southern states involved observation of the Core teacher training program, a secondary activity of daily conferences and field trips was also considered to be extremely important. The conferences were led by outstanding educators, mainly persons with substantial experience and high levels of responsibilities in different phases of trade and technical education. The field trips were made to high school, junior college and occupational center programs of trade and technical education and to the business and administrative offices of the Los Angeles City School System.

The unified Core program of vocational teacher preparation employed at U.C.L.A. should have special interest to all persons involved in pedagogy. The carefully planned use of team teaching techniques and the discussion of their benefits, when compared with traditional methods, is most enlightening. Readers not concerned with the preparation of teachers may gain insight into practical applications of team teaching to their own school and college situations and the ways in which multi-media forms of instruction may be employed.

TOPIC FIVE: Pilot and Demonstration Projects

Dental Assisting Training

5:13 "SUMMARY AND EVALUATION REPORT: PILOT SUMMER VOCATIONAL TEACHER TRAINING INSTITUTE IN DENTAL ASSISTING" BY A. RAYMOND BARALT, JR. UNIVERSITY OF DETROIT, DETROIT, MICH. (PROJECT # 6-2652) 1967. (VT # 002 927) 35 PAGES.

In the introductory statement of the University of Detroit report is information that today's practicing dentists are using the services of auxiliary dental personnel more widely than at any other previous time. Citing data obtained from the American Dental Association Surveys and from the Division of Dental Health of the United States Public Health Service, the report estimates that the number of dental assisting programs in the country should expand from the 92 programs now established or in the late planning state, to 400 by 1980.

The objective of the four-week summer institute was to present an intensive, specialized course to prepare dental assistants for teaching positions in dental assisting schools. The course was developed to encompass those dental assistants who had very limited or no teaching and administrative experiences, and to provide instruction in basic teaching principles as well as guidance and background information necessary to develop an accredited dental assistants training program.

The program was planned to devote approximately half of the subject area to professional education deemed essential to successful teaching in community and junior college programs in dental assisting. The remaining subject area would relate to the role of the dental assisting teacher in directing a school of dental assistants, developing its curriculum and coordinating the total program.

The course was planned on the basis of 120 hours of instruction and the students ranged in age from 20 to 54. They represented 11 states.

The report contains lists of faculty, teacher trainees and guest participants, an outline of the program of instruction and a summary of recommendations.

In the summary section is a strong recommendation that future programs should be conducted in conjunction with a dental school that has an accredited dental assistants educational program. Other recommendations were made in relation to class size—2 sections of 20 instead of one; length of program—4 weeks seemed appropriate, and the need for more detailed pre-institute planning taking advantage of consultant services.

Dental Assisting Teachers

5:14 "FINAL REPORT: PILOT VOCATIONAL TEACHER TRAINING INSTITUTE IN DENTAL ASSISTING, SUMMER, 1966" BY ROGER E. BARTON. UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL, N. C. (PROJECT # 6-2653) 1966. ERIC # ED 010 334. MF $0.18 HC $3.16. 67 PAGES.

The University of North Carolina summer training institute for dental assisting teachers differs from the one conducted in Detroit in that it was held in the School of Dentistry at Chapel Hill.

The objective of this four-week institute was stated, "To present a short, concentrated program of instruction on the art and science of dental assistant teaching as well as refresher material in chairside assisting in the many phases of dentistry to those persons qualified and who had been associated with dental assistant teaching for five years or more."

The faculty of the School of Dentistry provided a curriculum and the Dental School's facilities were used throughout the program.

Participants were given a pre-program test in the knowledge and skills of dental assisting and a pre-program opinion survey. The class was limited in size to 13 because only that number of qualified participants with five years of teaching were obtained.

Ten Topics Presented

The presentation of the program included lectures, demonstrations, TV demonstrators, clinic and laboratory observation, dental assistant student clinical achievement evaluation, practice teaching participation, and discussion sessions.

The following 10 topics were presented in the 60-hour section on the art and science of teaching: Philosophies of Education; Development of Educational Objectives; Curriculum Design and Course Instruction; Theories of Learning; Student Evaluation;

Teaching Methods; Preparation and Use of Teaching Aids; Communications—Public Speaking; Student Counseling, and Student Selection.

The chairside assisting section of the curriculum, scheduled for approximately 50 hours, was organized in accordance with the following items: team concept; office orientation and maintenance; oral diagnosis and treatment planning; anesthesia; operative dentistry; crown and bridge prosthodontics; endodontics; prosthodontics; pedodontics; oral surgery; periodontics; orthodontics, and instrument care and sterilization.

It was reported that even though the institute was organized for those persons with five years or more of dental teaching experience, the problem of arranging a curriculum meaningful and interesting to all was a major one.

Scheduling of topics was arranged to provide a sequential coverage of both major areas. The schedule also had to be arranged to coincide with other programs being conducted within the School of Dentistry, to coincide with the schedule of the dental assisting training program, and in conjunction with the faculty summer schedule.

Critiques Summarized

The report contains descriptions of the methods and materials employed in the presentation of both major phases of instruction. There is a summary of institute critiques prepared by the trainees. Among the items discussed in this section are statements that: more emphasis in practice teaching was thought to be desirable; the dental school is seen as a desirable setting for teacher training institutes because if dental assistant programs are to be taught at high school and vocational schools, the instructors need exposure to polished professional examples and standards; and, dormitory living is a "plus" since a genuine appreciation was expressed for the experience.

It is significant that both summer training institutes for teachers of dental assisting were conducted with the full cooperation and support of the American Dental Association. It is mentioned as a reminder to any college department of vocational teacher education that plans to become involved in the preparation or upgrading of teachers in various occupations relating to medical and dental professions. The sanction and active cooperation of professional organizations and individual practitioners—prior to the initiation of any such program—are strongly recommended.

Communication-Linked Techniques

5:15 "PRELIMINARY INVESTIGATION OF COMMUNICATION-LINKED TECHNIQUES FOR OFF-CAMPUS TEACHING OF VOCATIONAL AND TECHNICAL SUBJECTS" BY ALEXANDER SCHURE. NEW YORK INSTITUTE OF TECHNOLOGY, NEW YORK, N. Y. (PROJECT # 6-8254) 1966. (VT # 002 569) 149 PAGES.

This study recognizes the need to provide opportunities for nonskilled and semiskilled workers to improve their skills. Fifty percent of the working population now demands post high school education. Unfortunately, colleges and vocational schools do not have sufficient space to accommodate those significant numbers who wish to pursue a continued education. The study suggests that one solution to increasing opportunities is to bring the classroom to the students' homes, place of work or community center, via a communication-linked classroom system.

This system, utilizing modern materials, communication technology and well-trained teachers, has several other advantages. It provides for individualized learning and communication between student and teacher. Computerized instruction makes possible immediate reinforcement. Presenting material from least to most difficult in tested steps, the computer is geared to the individual's learning pace.

A preliminary survey on elements of communication-linked classroom system methodology was proposed. Second, a comprehensive survey was planned to evaluate actual experience with this system. The third objective was to prepare a detailed plan for execution of such a survey and for the evaluation.

The comprehensive survey of literature and ongoing activities would use a detailed questionnaire and visits for information gathering. A team of consultants from areas of psychology, programed instruction and educational evaluation would be organized along with specialists from colleges, government, industry, and research.

The result, a catalog of information on institutions, curriculum, success achieved as well as research, cost factors and personnel specifications, would serve as a source book to those determining the feasibility of techniques now used for future systems.

Reported in the study, as an example of the kind of activities to be included in the catalog, is a technique conducted by the Catholic Diocese of Brooklyn and I.B.M. This $100,000.00 experiment employs a telephone-linked computer to make homework simpler.

The study contains a detailed list of elements to be found in a communication-linked classroom. Included are specifications on classroom location and size, curricular material, presentation devices, and computer equipment. Also listed are intangible considerations such as academic organization, methodology, psychological factors, and economics of various systems.

The bibliography includes several hundred books, articles and references relating to ongoing activities. The report states that the techniques now in use are interim measures as new theories of design are evolving.

Hypothetical System Described

Most fascinating is the study's description of a hypothetical communication-linked classroom system.

The classroom would contain 20 to 30 students of various ages, interests and accomplishments, all learning different things. A teacher aide is present to orient and assist the students. Each student is assigned to a study carrel, containing desk, chair, bookcase, and tape machine, and he is given his materials. He may speak to

his teacher at the communication desk. The classroom contains an examination scoring station where students' short answers are read and graded. A cartridge loading motion picture projector is provided for individual viewing. Also at the learning center is an Auto Tutor teaching machine, tape recording station and an automatic library request desk.

The academic center provides direction, materials and supervision by teachers. Each teacher is responsible for three to four courses. The teacher can supervise several times the number of students found in a normal teaching situation. The center is the teachers' base of operation and contains the central academic computer.

The communication-linked classroom system is only one answer to the critical shortage of facilities, teachers and equipment. Since the preliminary literature search reveals that interest already exists, the study recommends the conduct of a survey and evaluation of actual experience of existing operations with regard to implications for technical and vocational education.

Such a comprehensive survey would be most helpful before the implementation of additional systems. The communication-linked classroom system would enlarge facilities and provide specially trained teachers. It realizes the principles of immediate reinforcement, individual differences and individual pacing.

A Partial Answer

However, do we meet the problems caused by automation with automation? Learning is not always an individual process but also a social one where an exchange of thought and experience between teacher and student can provide incalculable stimulation. There can be no system to supersede human contact and involvement.

Despite the popularization of the behavioral approach to learning, other educational psychologists, like Bruner, stress that greater transfer and creative thinking occurs through conceptual learning rather than a step-by-step absorption of factual information, facts that may quickly become obsolete.

As computers take over more and more of our mundane responsibilities, we ought to train for and inspire potential that will not be replaceable. As one of the investigators states: "Within our lifetime there will be no jobs for people who cannot perform more creatively than machines."

"PLAIN TALK"

AMONG THE 15 projects reported in this issue are 5 that pertain to new media of instruction: programmed learning, computer assisted teaching, communication-linked techniques, a model center for teacher technology. Other studies have dealt with the potential use of retired military personnel, teacher supply and demand factors, several clinics and institutes to upgrade teachers, and a study of the feasibility of providing trade competency examinations on a national basis.

Perhaps the most significant of these is the feasibility study. It was revealed that the majority of states do not now have any comprehensive program for giving trade proficiency examinations to teacher candidates. For many, the limited numbers of candidates in each occupational category would make a statewide test development program prohibitive in cost. Subsequent investigations are needed to follow up on the work begun at Rutgers. Special attention could be given to the various ways in which national proficiency examinations would be put to use by state and college authorities. Further research is also needed to test preliminary findings that support the need for both written and performance examinations.

When considering the range of topics that have been selected for investigation, it is disturbing to note how little attention has been given to the very foundations of the vocational teacher education program. It would appear legitimate to ask why more research has not been initiated which attempts to analyze the role and effectiveness of the various components involved in the preparation of teachers. Included here would be the administrative setting, the instructional staff, the curriculum, and the student.

A basic precept in research is that all ideas and all institutions are legitimate subjects for scientific measurement and evaluation; conversely, there should be none that are immune or exempt. If this is so, then it would appear incumbent upon educational institutions that espouse the principles of research to practice what they preach, and hold their own organizations and institutions up to a hard objective light of appraisal.

The comments of Moss, in his "Review of Research in Vocational Technical Teacher Education", are most appropriate here.

"With some exception of course, little has been done which materially contributes to the development of a science of teacher education. We need a system of verified principles which will permit us to understand and control the teacher education process. At present we are still operating programs primarily on the basis of tradition, 'convention,' wisdom, and personal experience."

The lack of a scientific base for teacher education, and the apparent hesitancy of teacher educators to give attention to

the problem, place the professional status of pedagogy in real jeopardy. In this period of crisis and turmoil, educators can be sure that others will be making more and more critical appraisals of schools, teachers and the teacher education process. They now are. (See Friedenberg's article, "Requiem for the Urban School," *Saturday Review*, Nov. 18, 1967.)

There appears to be no uniform organizational pattern for vocational teacher education. Each state, and in many cases institutions within each state, appears to have a different concept of what education is. Certainly, there is a proliferation of different instructional approaches. There seem to be few common denominators among colleges preparing teachers for positions in agriculture, business, health services, home economics, trade and industrial, and technical education. And when colleges and universities have departments preparing teachers for various fields of specialization, there is often a lack of common identity among them.

If vocational education is to continue as a significant and vital phase of the total educational program, then it must strive to have an identity—a set of fundamental goals and purposes that can be readily articulated and understood, and which can have the general support and commitment of all who call themselves vocational educators.

Staff, Curriculum, Students

There ought to be further investigation of the instructional staff for vocational teacher education. Penetrating studies that are more than an exchange of opinions of staff members are needed. Should all staff members have common patterns of prior experience and training, or would it be better to insure that each position in the faculty is designed to bring discreet and unique contributions to the total effort? Should professors of vocational education be specialists or handymen; which is better and who decides?

And what about the professional curriculum in vocational teacher education? Is that not fair game for objective analysis and critical appraisal? The faculty that relies entirely on tradition and opinion here is likely to be most vulnerable to the slings and arrows of the generalists and liberal artists. It would seem that the more the vocational curriculum is indeed the product of careful objective analysis—involving others than the vocational staff members—the more it would gain general acceptance and support, and the better it would serve the broad interests and specific goals of education.

There are also some questions that need to be answered regarding the recruitment and selection of candidates for the vocational teaching curriculum. What research exists to determine whether or not intensive payroll employment experience is indeed a significant factor in teacher effectiveness? At present there is considerable controversy on this question, and the arguments on both sides are influenced by opinion, tradition, emotion and hearsay, scarcely the valid sources of scientific inquiry.

When further studies concerning the relative values of prior occupational experience are made, it is hoped that job-related skill and knowledge will not be the only criteria measured. There have been some rather superficial studies made to show that skill and knowledge can be learned in a collegiate situation. True enough, but the factors overlooked here are the contributions to teaching that come from insights, attitudes and patterns of behavior that are developed on the job.

There has been considerable comment regarding the shortage of qualified vocational teachers in a variety of occupational fields. The solution that seems to be most frequently proposed calls for major changes in regulations and minor adjustments in college programs. Why?

No doubt, many teacher certification requirements, designed in the past for different conditions, are in need of revision. But this could be said of the teacher education programs as well. How diligent have teacher education institutions been in seeking out competent young practitioners in various occupations, persons who combine the capacity for college work with some practical experience?

What innovative programs have been initiated to take such young people into a vocational teacher preparation curriculum on an extension basis, while they remain at work gaining additional job experience? It would seem that this approach would have certain advantages over the cooperative work-experience approach now being used at some colleges. There is a basic weakness in cooperative experience when both parties—the worker and the employer—are aware that it is temporary and for experience only. Such a program is not real and meaningful.

The employer is not likely to give the individual more than just experience; the secrets of the business, the disciplines and rewards, are likely to be missed. The employee, on the other hand, who knows that this will just be a temporary experience, will have trouble getting any real sense of involvement. Also, the associations and relationships with other workers are likely to remain tenuous.

Department of Education Leadership

There is little evidence that state departments of education are giving attention to the improvement of vocational teacher education, at least through U. S. Office of Education sponsored studies. Although it is known that some of the more populous states are conducting studies that relate to vocational teachers, it must be assumed that there are others where further investigation is badly needed.

Some of the problems associated with vocational teacher education that appear to be appropriate for research are: the assessment of minimum standards for teaching in various vocational categories; the identification of present and future teacher requirements; the development of articulation between various teacher education institutions, department of education offices, and other governmental agencies; and, the development of policies and practices concerning vocational teacher education that could serve as guides for all teacher education institutions.

Perhaps the most serious deterrent to effective state

leadership in vocational education is the plethora of uncoordinated offices and institutions that now prevail. The diffusion and duplication of authority and responsibility make for lack of direction.

There seem to be completely different sets of regulations and policies that apply to teachers in each form of organizational setting for vocational education. Even when the vocational course title, curriculum objectives and instructional plan are virtually identical, there is a wide variation in the qualifications prescribed for teaching from one type of school to another.

In some cases, the only prerequisite for teaching is occupational competence, possibly laced with a modicum of teacher training. At the other extreme is the program in which college degrees are essential and occupational knowledge is incidental. Still other institutions for vocational education, generally the secondary schools, require a rather elaborate combination of requirements to meet certification standards.

It would seem that there are two major approaches that could be taken, either independently or through coordinated effort, that could improve the situation. The first of these would be the clear identification of one state authority for all vocational education in each state; the other would have to do with the establishment of accreditation agencies and evaluative criteria that would be concerned with programs of vocational education, rather than just for institutions that may have some vocational instruction.

PREVIOUSLY REPORTED STUDIES

There are a number of studies reported in previous issues which are relevant to this month's topic. Those readers who are particularly concerned with teacher training may want to refer to the following reports included in the September, October or November "Research Visibility" section.

Studies on inservice seminars and workshops are:

—"Eight Week Summer Institute Program to Retrain Office Education Teachers for Teaching Business Electronic Data Processing" by Koschler, Watson, Breese, Carter and Valentine (September).

—"Program for Technical Communications Training for Technical Education Teachers (Summary Report)" by Weisman (October).

—"Production of a Motion Picture for Inservice Training of Teachers in Problems of Human Relations in Teaching the Socio-Economically Disadvantaged—An Evaluation of the Motion Picture" by Breitrose (Nov.).

The following study shows evidence of state education department leadership in vocational education:

—"A Teacher Institute To Prepare Teachers and Materials for the Education of Rural, Low Achieving, Disadvantaged Junior High School Students for Entry into Vocational-Technical Programs" by Hodgson (November).

Studies related to vocational teacher training activities in higher educational institutions are:

—"Eight Week Summer Institute Training Program To Teach Instructors of Instrumentation Technology" by Ziol (October).

—"An Experimental Vocational Education Institute for the Preparation of Teacher Coordinators of Newly Emerging High School Vocational Programs" by Samson (October).

—"The Development of a Master Teacher Training Curriculum for Teachers of Occupational Level Training Programs" by O'Brian (Nov.).

Previously reported studies on pilot and demonstration projects are:

—"A Proposal to Prepare Teachers and To Develop Instructional Materials for Food Service Occupations" by Hollandsworth and Barbour (Sept.).

—"A Pilot Study in Advanced Instrumentation for Technical Instructors" by Larson (October).

—"Summer Institute To Train Data Processing Teachers for the New Oklahoma Statewide Computer Science System (Final Report on Phase I)" by Tuttle (October).

—"Increasing Task Oriented Behavior: An Experimental Evaluation of Training Teachers in Reinforcement Techniques" by Krumboltz (Nov.).

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Completed Studies

TOPIC ONE: Vocational Teacher Recruitment and Selection

5:1 "Feasibility of Providing Trade Competency Examinations for Teachers on a National Basis" by Griesse, Gerald. Rutgers-The State University, New Brunswick, N.J. (Project # 5-0043) 1965. (VT # 002 617) 85 pages.

5:2 "Study of Potential Utilization of Retiring Military Personnel in Vocational and Technical Education Programs" by Richland, Malcolm. System Development Corp., Santa Monica, Calif. (Project # 5-0147) 1967. ERIC # ED 010 593, MF $0.27 HC $5.84. 130 pages.

5:3 "Supply and Demand Factors Affecting Vocational Education Planning" by Kincaid, Harry V. Stanford Research Institute, Stanford, Calif. (Project # 5-0208) 1966. ERIC # ED 010 305. MF $0.27 HC $6.12. 121 pages.

TOPIC TWO: Inservice Seminars and Workshops

5:4 "Computer-Assisted Instruction; Summer Training Program" by McGregor, George C. Providence College and State Department of Education, Providence, R.I.

(Project # 5-0014) 1965. (VT # 002 424) 35 pages.

5:5 "Workshop for the Preparation of Home Economics Teachers to Teach Wage-Earning Programs in Food Service" by Fulta, Anna Carol. Southern Illinois University, Carbondale, Ill. (Project # 5-0015) 1965. ERIC # ED 003 493. MF $0.45 HC $11.48. 280 pages.

5:6 "Computer Assisted Instruction; In-Service Training for Vocational Teachers" by McGregor, George C. Providence College, Providence, R.I. (Project # 5-1214) 1966. (VT # 2423) 18 pages.

5:7 "Guidelines for the Preparation of Office Occupations Teachers" by Cook, Fred S. Wayne State University, Detroit, Mich. (Project # 6-1522) 1966. ERIC # ED 010 195. MF $0.18 HC $3.88. 87 pages.

5:8 "Conference for Vocational Teacher Education in New Media of Instruction" by Payne, W. Vincent. Tuskegee Institute, Tuskegee, Ala. (Project # 6-2224) 1966. ERIC # ED 010 435. MF $0.18 HC $2.76. 29 pages.

TOPIC THREE: State Education Department Leadership

No studies.

TOPIC FOUR: Expanding Vocational Teacher Training Activities in Higher Educational Institutions

5:9 "A Vocational-Technical Teacher Technology Center—The Development of a Model" by Larson, Milton E. Rutgers—The State University, New Brunswick, N. J. (Project # 5-0018) 1965. ERIC # ED 003 522. MF $0.18 HC $2.72. 60 pages.

5:10 "Training Program for Teachers and Leaders of Gainful Employment Training Programs in Home Economics" by Cozine, June. Oklahoma State University, Stillwater, Okla. (Project # 5-0053) 1965. ERIC # ED 003 105. MF $0.27 HC $6.64. 148 pages.

5:11 "A Training Institute for Teachers of Technical Programs in Agriculture" by Sidney, Howard. State University of New York, Cobleskill, N.Y. (Project # 6-2662) 1966. ERIC # ED 010 335. MF $0.18 HC $3.44. 79 pages.

5:12 "A Developmental Program for the Improvement of Trade-Technical Teacher Education in the Southern States" by Allen, David and Barlow, Melvin L. University of California, Los Angeles, Calif. (Project # 6-2861) 1966. ERIC # ED 011 061. MF $0.18 HC $2.96. 53 pages.

TOPIC FIVE: Pilot and Demonstration Projects

5:13 "Summary and Evaluation Report: Pilot Summer Vocational Teacher Training Institute in Dental Assisting" by Baralt, A. Raymond. University of Detroit, Detroit, Mich. (Project # 6-2652) 1967. (VT # 002 927) 35 pages.

5:14 "Final Report: Pilot Vocational Teacher Training Institute in Dental Assisting, Summer, 1966" by Barton, Roger E. University of North Carolina, Chapel Hill, N.C. (Project # 6-2653) 1966. ERIC # ED 010 334. MF $0.18 HC $3.16. 67 pages.

5:15 "Preliminary Investigation of Communication-Linked Techniques for Off-Campus Teaching of Vocational and Technical Subjects" by Schure, Alexander. New York Institute of Technology, New York, N.Y. (Project # 6-8254) 1966. (VT # 002 569) 149 pages.

Studies in Process

TOPIC ONE: Vocational Teacher Recruitment and Selection

"Performance Tests of Instructor Competence for Trade and Technical Education" by Popham, W. James. University of California, Los Angeles, Calif. (Project # 5-0004).

"Vocational Programs in the Public Schools: The Role of the Teacher" by Godfrey, Eleanor P. Bureau of Social Science Research, Inc., Washington, D.C. (Project # 5-0140).

"Evaluation of Student Teaching in Home Economics: by Nelson, Helen. Cornell University, Ithaca, N.Y. (Project # 5-1333).

TOPIC TWO: Inservice Seminars and Workshops

"Changing Teacher Morale" by Bently, Ralph R. Purdue University, Lafayette, Ind. (Project # 5-0151).

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"Maximization of the Professional Potential of Home Economics Teachers Through Group Counseling" by Ray, Elizabeth. Pennsylvania State University, University Park, Pa. (Project # 5-0194).

"The Development of a Regional Teacher Education Program for the Field of Distribution and Marketing" by Purvis, A. W. and Wolf, C. W. University of Massachusetts, Amherst, Mass. (Project # 5-1317).

"Institute for Home Economics Teachers on Initiating, Developing, and Evaluating Programs at the Post High School Level To Prepare Food Service Supervisors and Assistants to Directors of Child Care Service" by Cross, Aleene. University of Georgia, Athens, Ga. (Project # 6-2258).

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"Pre-Service Education of Office Occupations Teachers" by Pasewark, William. Texas Technological College, Lubbock, Texas. (Project # 7-0450).

TOPIC FIVE: Pilot and Demonstration Projects

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"Experimental Research Program for Vocational-Technical Teachers" by Merrill, E. C. and Russell, Wendell H. Oak Ridge Associated Universities and University of Tennessee, Oak Ridge and Nashville, Tenn. (Project # 6-2329).

AVAILABILITY OF REPORTS FOR FURTHER STUDY

All reports which are followed by the letters ERIC and an acquisition number like ED 010 000, may be purchased from the ERIC Document Reproduction Service, Microphoto Division, The National Cash Register Company, Box 2206, Rockville, Md. 20852. The letters (MF) indicate the availability of microfiche copies; and (HC) for hardbound copies, at the prices given.

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